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AGRICULTURAL MEMORANDUM NO. 367

An examination of temperature data in relation to the earliness of the west of the British Isles.

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1. In horticulture the earliness of the west of the British Isles is a natural resource with a high economic value. Perhaps the most outstanding example of this is to be seen in relation to the early potato harvest. If the crop from the earliest areas, south Pembrokeshire and west Cornwall, overlaps with that from normally later areas, such as Thanet and the Fens, there is a rapid fall in price. Information kindly provided by Mr A J B Ratcliffe shows that at the beginning of the season (ie late May onwards) the average fall of price over the first 4 days is around £20 per ton (1964-69). In some years the fall is even more marked.

2. In recent years there has been a tendency for springs to be later. The question arises whether they have been retarded to about the same degree in both the east and west of the country. If not, has the west lost any of its advantage or has it improved its position?

3. To provide an answer the temperature data for Plymouth and Mildenhall in Suffolk are examined. The data comprise the monthly mean temperatures for January to April, 1949-69.

TABLE I Mean temperatures 1949-69, °C

	Jan.	Feb.	Mar.	Apr.	J-M	J-A
Plymouth	5.90	5.59	7.13	9.08	6.21	6.92
Mildenhall	3.53	3.93	6.13	8.71	4.53	5.57
Plymouth minus Mildenhall	2.37	1.66	1.00	0.37	1.68	1.35

4. The values given in the last line of Table I may be taken as the normal differences between Plymouth and Mildenhall and used as a basis to determine whether in individual years the west is earlier or later than normal, compared with the east.

If the differences between Plymouth and Mildenhall for individual months are compared with the averages above, we obtain monthly earliness values in °C, positive if the west is relatively earlier, negative if it is later. These are given in Table II.

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TABLE II Earliness values, 1949-69, °C

	Jan.	Feb.	Mar.	Apr.	J-M	J-A
1949	-0.1	-0.6	+1.4	-1.4	+0.3	-0.1
50	-0.2	-0.3	+0.4	+0.7	0	+0.2
51	0	0	0	+0.6	0	+0.2
52	-0.5	+0.3	-0.2	-1.2	-0.1	-0.4
53	-0.1	-1.0	-0.5	+0.3	-0.5	-0.3
54	+0.3	+0.6	+0.2	+0.8	+0.4	+0.5
55	+1.2	+0.3	+0.2	-0.8	+0.6	+0.3
56	+0.2	+0.3	+0.2	+1.2	+0.3	+0.5
57	-1.4	-0.3	-0.4	+1.0	-0.7	-0.3
58	-0.3	+0.4	+0.4	+0.1	+0.2	+0.2
59	+1.1	0	-0.5	-0.9	+0.2	-0.1
60	-0.4	-0.6	+0.5	+0.3	-0.1	0
61	0	-0.8	-1.4	-0.4	-0.7	-0.6
62	+0.2	-0.5	+0.3	0	0	0
63	-0.2	+1.7	-0.5	-0.6	+0.4	+0.1
64	+0.8	-0.5	+0.6	-1.0	+0.3	0
65	-0.6	-0.6	-0.2	-0.2	-0.4	-0.4
66	+0.2	+0.3	+0.2	+0.7	+0.3	+0.4
67	-0.5	-0.6	-1.1	+0.9	-0.7	-0.3
68	+0.4	+0.1	-0.9	-1.2	-0.1	-0.4
69	-0.7	+0.9	+1.3	+0.5	+0.5	+0.5

5. If 1959 is ignored the series can be divided into 2 ten-year periods. For each of these periods Table III shows the number of positive, negative and zero earliness values.

TABLE III Frequency of positive, negative and zero earliness values

	Jan.			Feb.			Mar.			Apr.			J-M			J-A		
Period	+	-	0	+	-	0	+	-	0	+	-	0	+	-	0	+	-	0
1949-58	3	6	1	5	4	1	6	3	1	7	3	0	5	3	2	6	4	0
1960-69	4	5	1	4	6	0	5	5	0	4	5	1	4	5	1	3	4	3

No important differences between the 2 periods are shown, with the possible exception of April. As a check, significance tests were made (after apportioning zero values equally among the positive and negative values). No differences were significant, but the differences for April most nearly approached significance ($.20 > P > .10$).

6. Discussion and conclusions

There are a number of ways in which earliness may be assessed. Using the monthly values of mean temperature over a period of 21 years there is no evidence that the west of the British Isles is becoming more or less early relative to the east. The nearest approach to a significant recent change occurs in April which shows some hint of a loss of earliness in the west.

Any comments or suggestions on this paper should be sent to the author.

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